REMARKS

[0003] Applicant respectfully requests reconsideration and allowance of all of the claims of the application. Claims 1-2, 4-6, 8-35 and 37 are presently pending. Claims 1, 4, 14, 17, 23, 24, 31, 34, and 37 are amended herein. No claims are withdrawn or cancelled herein. No new claims are added herein.

Statement of Substance of Interview

[0004] The Examiner graciously talked with me—the undersigned representative for the Applicant—on 8/7/08. Applicant greatly appreciates the Examiner's willingness to talk. Such willingness is invaluable to both of us in our common goal of an expedited prosecution of this patent application.

[0005] During the interview, I discussed how the claims differed from the primary cited reference, namely Odman. Without conceding the propriety of the rejections and in the interest of expediting prosecution, I also proposed several possible clarifying amendments.

[0006] The Examiner indicated that the proposed amendments distinguishing reserved versus allocated bandwidth amounts were likely to overcome the references, particularly the primary reference, Odman. This Response contains the same and additional clarifying amendments as were discussed.

[0007] Applicant herein amends the claims in the manner discussed during the interview. Accordingly, Applicant submits that the pending claims are allowable over the cited art of record for at least the reasons discussed during the interview.

Formal Request for an Interview

[0008]   If the Examiner's reply to this communication is anything other than allowance of all pending claims, then I formally request an interview with the Examiner. I encourage the Examiner to call me—the undersigned representative for the Applicant—so that we can talk about this matter so as to resolve any outstanding issues quickly and efficiently over the phone.

[0009]   Please contact me to schedule a date and time for a telephone interview that is most convenient for both of us. While email works great for me, I welcome your call as well. My contact information may be found on the last page of this response.

Claim Amendments

[0010]   Without conceding the propriety of the rejections herein and in the interest of expediting prosecution, Applicant amends claims 1, 4, 14, 17, 23, 24, 31, 34, and 37 herein. Applicant amends claims to clarify claimed features. Such amendments are made to expedite prosecution and more quickly identify allowable subject matter. Such amendments are merely intended to clarify the claimed features, and should not be construed as further limiting the claimed invention in response to the cited references.

[0011]   Support for the amendments to claims 1, 4, 14, 17, 23, 24, 31, 34, and 37 is found in the specification at least at paragraphs [0038]-[0040] and [0056]-[0061], and Fig. 6.

[0012]   From paragraphs [0038]-[0040], we have:

$$Reserved(m) = \alpha \times Reserved(m-1) + (1-\alpha) \times NewlyArrived(m)$$

$$= \alpha \times Reserved(m-1) + (1-\alpha) \times [Requested(m) - Unserviced(m-1)]$$

[0013] So, a reserved bandwidth amount of the stream of the entity for the current superframe is updated using a weighted average of

Requested(m), current requested bandwidth amount,

Unserviced(m-1), the unserviced bandwidth amount, and

Reserved(m-1), a previous reserved bandwidth amount of the stream of the entity from the immediate previous superframe.

[0014] FIG. 6 is helpful to understand the features of the present application and the language recited in the claims. The followings are direct quotes from paragraphs [0056]-[0059] of the present application (with emphasis added):

> "FIG. 6 is an exemplary bandwidth allocation 600 for one general device 102 over two superframes 202. Specifically, bandwidth allocation 600 implements part of the method of flow diagram 500 (of FIG. 5) for a single general device 102' over (primarily) two superframes 202(m) and 202(m+1) in which the time units are genericized to bandwidth units. Bandwidth allocation is performed for general device 102' by device coordinator 102(C) in a wireless network 100. Although not explicitly shown in bandwidth allocation 600, device coordinator 102(C) may also be allocating available bandwidth to other general devices 102.

"**In a previous superframe 202(m-1), device coordinator 102(C) has retained or noted that 3 unserviced bandwidth** (BW) units are associated with device 102' for consideration in the next superframe 202(m). In superframe 202(m) for this example, **device 102' sends a bandwidth allocation request that stipulates 10 requested bandwidth units** to device coordinator 102(C).

"**First (e.g., corresponding to block 406A of FIG. 5), 3 bandwidth units are assigned to the 3 unserviced bandwidth units from superframe 202(m-1). Second (e.g., corresponding to block 406C), 2 bandwidth units are then assigned to the reserved bandwidth amount, which is given as 2 bandwidth units in this example. Third** (e.g., corresponding to block 406E), 1 bandwidth unit is assigned toward the overloaded bandwidth amount, which totals 5 bandwidth units in this superframe (i.e., 10 requested bandwidth units – 5 bandwidth units assigned thusfar).

"After assignment of bandwidth units to the overloaded bandwidth amount, 6 total bandwidth units are allocated to device 102' in superframe 202(m). Consequently, device coordinator 102(C) transmits an allocation broadcast that notifies device 102' of the 6 allocated bandwidth units. **Hence, of the 10 requested bandwidth units, 4 bandwidth units are still unallocated.** There are therefore 4 unserviced bandwidth units resulting from superframe 202(m) and retained in association with device 102' for consideration in the next superframe 202(m+1)."

Substantive Matters

Claim Rejections under § 103

[0015]   The Examiner rejects claims 1-2, 4-6, 8-35 and 37 under § 103. For the reasons set forth below, the Examiner has not made a prima facie case showing that the rejected claims are obvious.

[0016]   Accordingly, Applicant respectfully requests that the § 103 rejections be withdrawn and the case be passed along to issuance.

[0017]   The Examiner's rejections are based upon the following references in combination:

- **Odman:** *Odman,* US Patent Publication No. 2003/0152059 (published August 14, 2003);
- **Bellows:** *Bellows,* US Patent No. 7,283,562 (issued October 16, 2007);
- **Fichou:** *Fichou, et al.,* US Patent No. 6,765,873 (issued July 20, 2004);
- **Wibowo:** *Wibowo, et al.,* US Patent Publication No. 2001/0043613 (published November 22, 2001); and
- **Crisler:** *Crisler, et al.,* US Patent No. 5,594,738 (issued January 14, 1997).

Overview of the Application

[0018]   The Application describes a technology for a coordinating device which performs bandwidth allocation procedures based on information from

previously-unfulfilled bandwidth allocation requests and responsive to current bandwidth allocation requests.

Cited References

[0019] The Examiner cites Odman as the primary reference in the obviousness-based rejections. The Examiner cites Bellows, Fichou, Wibowo, and Crisler as secondary references in the obviousness-based rejections.

Odman

[0020] Odman describes transmitting wireless signals in a network comprising a network coordinator and one or more remote devices.

Bellows

[0021] Bellows describes scaling an input bandwidth for bandwidth allocation. An original bandwidth count value of an input flow is received. A bandwidth scalar constant is provided and used for scaling the received original bandwidth count value to provide a scaled bandwidth value between zero and one. The scaled bandwidth value is stored and used for calculating a transmit probability for the input flow. (Bellows, Abstract)

Fichou

[0022] Fichou describes a connection bandwidth management process and system for use in a high speed packet switching network. The network comprises a plurality of switching nodes interconnected through a plurality of communication links. Each of the switching nodes comprises means for switching packets from at least one input link to at least one output link. Each of the output links are coupled to at least one buffer in the switching node for queuing packets before they are transmitted over the output link. Each of the communication links supports the traffic of a plurality of user connections statistically multiplexed over the link. Each user connection is allocated an initial agreed-upon bandwidth through the network, with each of the communication links being possibly oversubscribed. (Fichou, Abstract)

Wibowo

[0023] Wibowo describes resource allocation in a broadband telecommunications network operating under CF-DAMA. Data-slot credits for each terminal are accumulated, once all CRA and RBDC bandwidth reservations have been satisfied. These credits represent the prioritized segment of the terminal's VBDC bandwidth request and are used by a resource allocation server within the base station of the network to prioritize the VBDC allotment of data slots to that terminal. Once the terminal's VBDC credits have been used, the resource allocation server attempts to satisfy the remaining un-prioritized VBDC bandwidth request, but will only do so if data slots are still available after all of

the CRA and RBDC reservations and all VBDC credits of the given terminal have been accommodated. (Wibowo, Abstract)

Crisler

[0024]   Crisler describes how uplink time slots may be allocated within a communication system when a communication unit transmits a first packet to a time slot allocator. Upon receiving the first packet, the time slot allocator determines whether the first packet contains a request for allocation of N uplink time slots. When the first packet contains the request for allocation of N uplink time slots, the time slot allocator allocates the N uplink time slots to the communication unit when the N uplink time slots are available, wherein the N uplink time slots are allocated contiguous in time. The time slot allocator then transmits an allocation indication to the communication unit in each of N downlink time slots corresponding to the N allocated uplink time slots to inform the communication unit of the allocation. (Crisler, Abstract)

Obviousness Rejections

Lack of *Prima Facie* Case of Obviousness (MPEP § 2142)

[0025]   Applicant disagrees with the Examiner's obviousness rejections. Arguments presented herein point to various aspects of the record to demonstrate that all of the criteria set forth for making a prima facie case have not been met.

Based upon Odman, Bellows, and Fichou

[0026]   The Examiner rejects claims 1-2, 4-6, 8-10, 14-20, 23, 31-33 and 37 under 35 U.S.C. § 103(a) as being unpatentable over Odman in view of Bellows and Fichou. Applicant respectfully traverses the rejection of these claims and asks the Examiner to withdraw the rejection of these claims.

Independent Claim 1

[0027]   Applicant submits that the combination of Odman, Bellows and Fichou does not render obvious at least the following elements as recited in this claim (as amended and with emphasis added):

- determining an unserviced bandwidth amount from an **immediate** previous superframe;

- updating a reserved bandwidth amount of the stream of the entity for the current superframe using a weighted average of

- **current requested** bandwidth amount,

- the **unserviced** bandwidth amount, and

- a **previous reserved** bandwidth amount of the stream of the entity from the immediate previous superframe

[0028] In contrast, in Odman does not disclose, teach or suggest:

- an **immediate** previous superframe; and

- a weighted average of three different bandwidth amounts.

[0029] Similarly, these elements or features of this claim are not disclosed, taught or suggested by the other two references, Bellows and Fichou. In fact, the Examiner relies on these other two references merely for a smoothing factor. A smoothing factor is no longer recited in this claim.

[0030] Accordingly, these references, either alone or in combination, do not disclose, teach or suggest all of the claim elements or features. Thus, this combination of references does not make obvious this claim as amended. The Applicant respectfully asks the Examiner to withdraw the rejection of this claim.

Independent Claims 14, 31, and 37

[0031] Each of independent claims 14, 31, and 37 recites elements and features similar to the claimed features discussed above regarding claim 1. In particular, these claims, as amended, recite "updating a reserved bandwidth

amount of the stream of the entity for the current superframe using a weighted average of" (1) current requested bandwidth amount, (2) the unserviced bandwidth amount, and (3) a previous reserved bandwidth amount of the stream of the entity from the immediate previous superframe. These elements or features of these claim are not disclosed, taught or suggested by any of the references, Odman, Bellows and Fichou.

[0032]   Thus, claims 14, 31, and 37 are allowable over the cited references for at least similar reasons as discussed above regarding claim 1 and because the combination of these references fail to disclose, teach or suggest each and every element or feature of these claims. Accordingly, Applicant respectfully requests that the Examiner withdraw the rejection of these claims.

Based upon Odman, Bellows, Fichou, and Wibowo

[0033]   The Examiner rejects claims 11-13 and 22 under 35 U.S.C. § 103(a) as being unpatentable over Odman in view of Bellows, Fichou, and Wibowo. Applicant respectfully traverses the rejection of these claims and asks the Examiner to withdraw the rejection of these claims.

[0034]   These claims ultimately depend upon independent claims 1 and 14, respectively. These claims thus have all of the features of these claims. As asserted above, Odman, Bellows and Fichou do not disclose, teach or suggest all of the elements of claims 1 and 14, and in particular updating a reserved bandwidth using a "weighted average of current requested bandwidth amount,

the unserviced bandwidth amount, and a previous reserved bandwidth amount of the stream of the entity from the immediate previous superframe."

[0035] Further, the Applicant asserts that the additional reference cited by the Examiner, Wibowo, also does not disclose, teach or suggest these features of the independent claims. The Examiner only cites Wibowo for "assigning unassigned slots to devices that still have bandwidth requests pending." Accordingly, the Applicant asserts that the combination of references cited by the Examiner does not render obvious the claims from which claims 11-13 and 22 depend. The Applicant respectfully asks the Examiner to withdraw the rejection of these claims on at least this basis.

Based upon Odman, Bellows, Fichou, and Crisler

[0036] The Examiner rejects claims 21 and 34 under 35 U.S.C. § 103(a) as being unpatentable over Odman in view of Bellows, Fichou, and Crisler. Applicant respectfully traverses the rejection of these claims and asks the Examiner to withdraw the rejection of these claims.

[0037] These claims ultimately depend upon independent claims 14 and 31, respectively. Thus, these claims have all of the features of these claims. As asserted above, Odman, Bellows and Fichou do not disclose, teach or suggest all of the elements of claims 14 and 31, and in particular updating a reserved bandwidth using a "weighted average of current requested bandwidth amount, the unserviced bandwidth amount, and a previous reserved bandwidth amount of the stream of the entity from the immediate previous superframe."

[0038] Further, the Applicant asserts that the additional reference cited by the Examiner, Crisler, also does not disclose, teach or suggest these features of the independent claims. The Examiner only cites Crisler for allocating time slots such that if a previous request for bandwidth cannot be fulfilled, then the granting device will queue these ungranted requests in a priority queue such that the ungranted requests will be the first to be serviced. Accordingly, the Applicant asserts that the combination of references cited by the Examiner does not render obvious the claims from which claims 21 and 34 depend. The Applicant respectfully asks the Examiner to withdraw the rejection of claims 21 and 34 on at least this basis.

Independent Claim 24

[0039] Applicant submits that the combination of Odman, Crisler, Bellows and Fichou does not render obvious at least the following elements as recited in this claim (emphasized added):

- **segmenting** the current requested bandwidth amounts into current **newly-arrived** bandwidth amounts and **immediate** previous unserviced bandwidth amounts associated with the multiple streams of the multiple entities;

- if available bandwidth units have not been consumed in the assigning, assigning the available bandwidth units to the current newly-arrived bandwidth amounts according to **current reserved** bandwidth amounts

for the multiple streams of the multiple entities based on a smoothing factor.

[0040]   Similarly, these elements or features of this claim are not disclosed, taught or suggested by Bellows and Fichou. In fact, the Examiner relies on these other two references merely for a smoothing factor.

[0041]   Further, the Applicant asserts that the additional reference cited by the Examiner, Crisler, also does not disclose, teach or suggest these features of this independent claim. The Examiner only cites Crisler for allocating time slots such that if a previous request for bandwidth cannot be fulfilled, then the granting device will queue these ungranted requests in a priority queue such that the ungranted requests will be the first to be serviced. Accordingly, the Applicant asserts that the combination of references cited by the Examiner does not render obvious this claim. The Applicant respectfully asks the Examiner to withdraw the rejection of claim 24 on at least this basis.

Dependent Claims 25 and 27-30

[0042]   The Examiner rejects claims 25 and 27-30 under 35 U.S.C. § 103(a) as being unpatentable over Odman in view of Bellows, Fichou, and Crisler. Applicant respectfully traverses the rejection of these claims and asks the Examiner to withdraw the rejection of these claims.

[0043]   These claims ultimately depend upon independent claim 24. Thus, these claims have all of the features of this claim. As asserted above, Odman,

Bellows and Fichou do not disclose, teach or suggest all of the elements of claim 24, and in particular updating a reserved bandwidth using a "weighted average of current requested bandwidth amount, the unserviced bandwidth amount, and a previous reserved bandwidth amount of the stream of the entity from the immediate previous superframe."

[0044]   Further, the Applicant asserts that the additional reference cited by the Examiner, Crisler, also does not disclose, teach or suggest these features of claim 24. Accordingly, the Applicant asserts that the combination of references cited by the Examiner does not render obvious claims 25 and 27-30 because claim 24, as amended, is allowable. The Applicant respectfully asks the Examiner to withdraw the rejection of claims 25 and 27-30 on at least this basis.

Based upon Odman, Bellows, Fichou, Crisler, and Wibowo

Dependent Claim 26

[0045]   The Examiner rejects claim 26 under 35 U.S.C. § 103(a) as being unpatentable over Odman in view of Bellows, Fichou, Crisler, and Wibowo. Applicant respectfully traverses the rejection of this claim and asks the Examiner to withdraw his rejection.

[0046]   This claim ultimately depends upon independent claim 24. Thus, this claim has all of the features of claim 24. As asserted above, Odman, Bellows, Fichou and Crisler do not disclose, teach or suggest all of the elements of claim 24, and in particular updating a reserved bandwidth using a "weighted average

of current requested bandwidth amount, the unserviced bandwidth amount, and a previous reserved bandwidth amount of the stream of the entity from the immediate previous superframe."

[0047]   Further, the Applicant asserts that the additional reference cited by the Examiner, Wibowo, also does not disclose, teach or suggest these features of claim 24. The Examiner only cites Wibowo for "assigning unassigned slots to devices that still have bandwidth requests pending" after allocating bandwidth to prioritized and normal requests. Accordingly, the Applicant asserts that the combination of references cited by the Examiner does not render obvious claim 26 because claim 24, as amended, is allowable over the combination of these references. The Applicant respectfully asks the Examiner to withdraw the rejection of claim 26 on at least this basis.

Dependent Claim 35

[0048]   The Examiner rejects claim 35 under 35 U.S.C. § 103(a) as being unpatentable over Odman in view of Bellows, Fichou, Crisler, and Wibowo. Applicant respectfully traverses the rejection of this claim and asks the Examiner to withdraw his rejection.

[0049]   This claim ultimately depends upon independent claim 31. Thus, this claim has all of the features of claim 31. The Applicant asserts that Odman, Bellows, Fichou and Crisler do not disclose, teach or suggest all of the elements of claim 31, and in particular updating a reserved bandwidth using a "weighted

average of current requested bandwidth amount, the unserviced bandwidth amount, and a previous reserved bandwidth amount of the stream of the entity from the immediate previous superframe."

[0050] Further, the Applicant asserts that the additional reference cited by the Examiner, Wibowo, also does not disclose, teach or suggest these features of claim 31. The Examiner only cites Wibowo for "assigning unassigned slots to devices that still have bandwidth requests pending" after allocating bandwidth to prioritized and normal requests.

[0051] Accordingly, the Applicant asserts that the combination of references cited by the Examiner does not render obvious claim 35 because claim 31, as amended, is allowable over the combination of these references. The Applicant respectfully asks the Examiner to withdraw the rejection of claim 35 on at least this basis.

Dependent Claims

[0052] If not already addressed individually above, in addition to its own merits, each dependent claim is allowable for the same reasons that its base claim is allowable. Applicant requests that the Examiner withdraw the rejection of each dependent claim where its base claim is allowable.

Conclusion

[0053]   All pending claims are in condition for allowance. Applicant respectfully requests reconsideration and prompt issuance of the application. If any issues remain that prevent issuance of this application, the **Examiner is urged to contact me before issuing a subsequent Action**. Please call or email me or my assistant at your convenience.

Respectfully Submitted,

Lee & Hayes, PLLC
Attorneys for Applicant

/JOHN CHANDLER MELINE/   Dated: 2008-08-26

John Meline (johnm@leehayes.com ; x257)
Registration No. 58,280

Assistant: Megan Arnold (megan@leehayes.com; x270)
Customer No. **22801**

Telephone: (509) 324-9256
Facsimile: (509) 323-8979
www.leehayes.com